

Remarks/Arguments:

Preliminary Matters

Claims 1-7 and 9-21 are presently pending and all pending claims stand rejected. By this amendment, claims 1, 10, 12, 15, 18, and 21 are herein amended and claim 5 is cancelled without prejudice or disclaimer of the subject matter thereof. Support may be found throughout the specification as originally filed. For example, see page 3, lines 12-13 and Figure 2. Applicants contend that no new matter is added. Reconsideration is respectfully requested in view of the above amendments and the following remarks.

Claim Rejection Under 35 U.S.C. 102(b):

Section four of the Office Action recites that "Claims 1-7, 9-12, and 14-21 are rejected under 35 U.S.C. §102(b) as being anticipated by Hughes et al. (US 5,883,784)." Applicants respectfully submit that these claims are presently allowable over Hughes for at least the reasons set forth below.

Claim 1, as amended, is directed to a heat sink and recites features that are neither disclosed nor suggested by Hughes. These features include:

a thermally conductive base;

a plurality of thermally conductive heat dissipating fins extending perpendicularly from said base, each fin having a length extending parallel to the base;

one or more recesses, each recess at least partially defined by adjacent parallel faces of two adjacent fins extending perpendicularly from said base, the recesses being defined in part by surfaces extending along the length of the fins parallel to the base, having a depth smaller than the height of said fins, and configured to support the edge of a circuit card; and

a face of the base disposed opposite said fins, said base being configured to be mounted with said face abutting a heat-generating component.

According to an exemplary embodiment, the heat sink includes a base having thermally conductive fins extending from a surface of the base where recesses defined by the fins are configured to support a circuit card, and the base of the heat sink has another surface that is

opposite the circuit card supporting fins and is configured to be mounted with the surface abutting a heat generating component. Thus, heat may be transferred from the heat generating component to the fins that support the circuit card edges.

This is different from Hughes because Hughes is devoid of any disclosure, teaching, or suggestion of a base having a face opposite circuit card supporting fins where the face is abutting a heat generating component. Instead, the base of Hughes identified in the Office Action (see Fig 1 on pg. 3 of the Office Action) has a face opposite the fins in which that face abuts heat removing fins 14 (see FIG. 1 of Hughes). In Hughes, the heat generating component (i.e., the circuit board) is supported by guide slots 16 and heat is transferred from the circuit board to heat removing fins 14 opposite the guide slots 16. The heat sink, in claim 1, on the other hand, has a surface opposite the fins that is configured to abut a heat-generating component. Thus, applicants contend that Hughes fails to disclose, teach, or suggest "a face of the base disposed opposite said fins, said base being configured to be mounted with said face abutting a heat-generating component." As Hughes fails to meet all of the features of claim 1, withdrawal of the rejection of claim 1 as anticipated by Hughes is respectfully requested.

Independent claims 10, 15, 18, and 21, as amended, while not identical to claim 1, include features similar to the allowable features discussed above with respect to claim 1. Accordingly, applicants contend that independent claims 10, 15, 18, and 21 are also allowable over Hughes for at least the reasons set forth above.

Claims 2-4, 6-7, 9, 11, 12, 14, 16, 17, 19, and 20 include all the features of the independent claims from which they ultimately depend. Therefore, applicants contend claims 2-4, 6-7, 9, 11, 12, 14, 16, 17, 19, and 20 are also allowable for at least the reason their respective base claims are allowable. Accordingly, withdrawal of the rejections of claims 2-4, 6-7, 9, 11, 12, 14, 17, 19, and 20 as anticipated by Hughes is respectfully requested.

Claim Rejections Under 35 U.S.C. 103(a):

Section five of the Office Action recites "Claim 13 is rejected under 35 U.S.C. §103(a) as being unpatentable over Hughes et al." Applicants respectfully submit that this claim is allowable over Hughes for at least the reason set forth below.

As discussed above, Hughes fails to disclose, teach, or suggest a heat sink having a base abutting a heat generating component (such as a semiconductor chip; see page 3, lines 7-8 of applicants' disclosure) on a surface of the base opposite the fins. The Office Action recites, however, that it would have been obvious "to further place the electronic component at a position opposite to the recess." Applicants respectfully disagree.

As recited in Hughes, "[i]t is intended that the two holding elements should conduct heat away from the structure which has been secured by electronic components mounted upon the respective circuit boards when these are received in their receiving stations" (emphasis added). See col. 3, lines 62-66 of Hughes. Mounting a heat generating component on a surface of a base opposite the circuit card supporting "fins," as called for in claim 13, would cause heat to conduct toward the structure, thereby frustrating the intended purpose of Hughes. Accordingly, Hughes teaches away from mounting a heat generating component on a surface of a base opposite the circuit card support. Thus, it would not have been obvious to affix the heat sink with the recess disposed opposite the heat generating component as suggested in the Office Action.

Accordingly, applicants respectfully submit that claim 13 is allowable over Hughes and withdrawal of the rejection of claim 13 as obvious over Hughes is respectfully requested.

New Claims

By this amendment, claims 22 and 23 are added. Support may be found throughout the specification as originally filed. For example, see page 5, lines 4-13. No new matter is added.

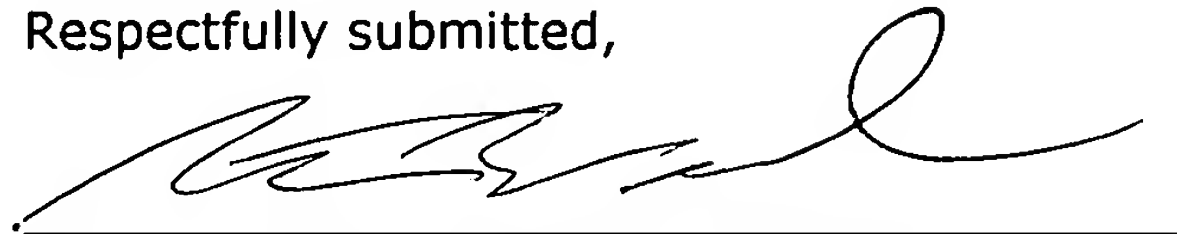
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Conclusion

In view of the above amendments and remarks, applicants submit that this application is now in condition for allowance, which action is respectfully requested.

Respectfully submitted,



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